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Centrodraco abstractum, a New Species of Deepwater Dragonets from the Philippines (Teleostei: Draconettidae)

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With 1 figure

Summary

Centrodraco abstractum **n. sp.** from San Bernardino Strait, Philippines is described and compared with allied species. The new species is characterized by having 3 stout spines in the first dorsal fin, 12–14 soft rays in the second dorsal fin, 13 anal fin rays, and 24–27 pectoral fin rays; the first spine of the first dorsal fin slightly longer than the second spine in both sexes, but not elongate; the second dorsal fin distally slightly convex in both sexes, the male with very short distal filaments; the sides of the body with a group of 6–7 short transverse streaks below the anterior portion of the second dorsal fin, a dark saddle each before the first dorsal fin base and behind the second dorsal fin base, and a dark area on the caudal peduncle and basal caudal fin extending as a short dorsal dark stripe on the proximal one-third of the caudal fin; anterior and posterior basal sections of second dorsal fin dusky in male, vertical fins otherwise pale.

A revised key to the species of the family Draconettidae is presented.

Zusammenfassung

Centrodraco abstractum **n. sp.** wird aus der San-Bernardino-Straße, Philippinen beschrieben und mit verwandten Arten verglichen. Die neue Art ist innerhalb der Gattung *Centrodraco* durch die folgenden Merkmale charakterisiert: 3 dicke, spitze Stacheln in der ersten Rückenflosse, 12–14 Gliederstrahlen in der zweiten Rückenflosse, 13 Afterflossenstrahlen, 24–27 Brustflossenstrahlen; erster Stachelstrahl der ersten Rückenflosse etwas länger als zweiter Strahl, aber nicht verlängert und ohne Filament; zweite Rückenflosse distal leicht konvex, beim Männchen mit sehr kurzen distalen Filamenten; Körperseiten mit einer Gruppe von 6–7 kurzen vertikalen Streifen unterhalb des vorderen Teils der zweiten Rückenflosse; jeweils ein dunkler Sattel vor der ersten Rückenflosse und hinter der zweiten Rückenflosse; Schwanzstiel distal dunkel, mit einem dunklen Streifen, der dorsal auf das erste Drittel der Schwanzflosse hinausreicht; vorderer und hinterer Teil der zweiten Brustflosse beim Männchen basal dunkel; übrige vertikale Flossen ohne Zeichnung.

Ein revidierter Bestimmungsschlüssel für die Arten der Familie Draconettidae ist beigefügt.

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1. Introduction

The deepwater dragonets of the family Draconettidae are a group of benthic marine fishes living on soft bottoms of the continental edges and slopes and on submarine ridges and seamounts, at depths of 128–600 m. Its members are distributed worldwide in tropical and subtropical oceans (between 35°N and 35°S). Most species of draconettids are considered to be extremely rare; the majority is known only from a few specimens. The rarity may be due to the scarcity of large soft bottom areas suitable for dredging or trawling operations, on the continental slopes which are the main habitat of draconettid species.

The first draconettid was described by JORDAN & FOWLER (1903) from Japan (*Draconetta xenica*). Another species described by REGAN (1904: *Draconetta acanthopoma*) was later separated from *Draconetta xenica* on the generic level by REGAN (1913), who described a second genus, *Centrodraco.* This genus was synonymized with *Draconetta* in the first revision of the family (BRIGGS & BERRY, 1959), but later considered as valid. FRICKE (1982) compiled a list of the nominal genera and species of the family known at that time. NAKABO (1982) published another revision, considering seven species as valid.

In the 1980s, the knowledge about draconettid fishes increased rapidly due to better sampling techniques and collecting efforts in remote areas. After NAKABO's revision, several unknown species were found. PARIN (1982) published descriptions of three new species from the Southeast Pacific, an area from where no fishes of the family had been recorded before (*Draconetta gegonipa, D. nana, D. striata*); these species were later assigned to *Centrodraco.* The family was again revised by FRICKE (1992), who recognized a total of 11 species as valid (*Draconetta xenica* and 10 species of *Centrodraco*) including two new species and a new subspecies. *Draconetta xenica* is found at a depth range of 128–241 m, while species of *Centrodraco* occur deeper at 210–600 m.

During an expedition to the Philippines, J. R. PAXTON of the Australian Museum (Sydney, Australia) collected two specimens of another, unknown draconettid of the genus *Centrodraco* which is described in the present paper. A revised key to the family Draconettidae is presented.

2. Methods, materials and acknowledgements

Methods: The measurement system follows FRICKE (1983a, 1992), which is modified from HUBBS & LAGLER (1958) except for the measurements starting at the tip of snout, which are measured from the mid of the upper lip, not from the tip of the upper jaw. The reason is that the upper jaw is protractile, which would lead to different measurements at different stages of jaw protraction if measuring from the tip of the jaw. If not otherwise stated, proportions are given as thousandths of SL. In the description, the data of the paratype follow those of the holotype, in parentheses.

The fin ray counting method follows FRICKE (1983b). Spines are counted with *large Roman*

numbers (I, II, ...), segmented branched soft rays with *Arabian numbers* (1, 2,), segmented unbranched soft rays with *small Roman numbers* (i, ii, ...), and unsegmented unbranched soft rays with small Roman numbers *in parentheses* ((i), (ii), ...). Different types of fin rays which are connected by a membrane are connected by a *comma* (,); if they are not connected by a membrane, a *plus sign* is inserted (+).

The key for the identification of the genera and species of the family Draconettidae is dichotomous. As draconettid species are highly sexually dimorphic, males and females of many species are keyed out separately in the key to genera and species. The key is thus artificial. Males of separate species may key out closer than males and females of the same species. Otherwise, relationships between species have been considered in the key as far as possible.

Materials: The specimens examined for the present study are deposited in the Australian Museum, Sydney, Australia (*AMS*).

Acknowledgements: For the permission to examine specimens in their care, I wish to thank D. F. HOESE, J. M. LEIS and M. MCGROUTHER (AMS, Sydney). This study has partially been supported by a grant of the Deutsche Forschungsgemeinschaft, Bonn (DFG, Grant No. FR 775/17–1).

3. *Centrodraco abstractum* n. sp. (Fig. 1)

Material

Total: 2 specimens.

Holotype: AMS I.36455–006, male, 96.8 mm SL; Philippines, San Bernardino Strait, 12°54.49'N 124°23.77'E – 12°57.50'N 124°21.45'E, 382–376 m depth; J. R. PAXTON et alii; 23 September 1995.

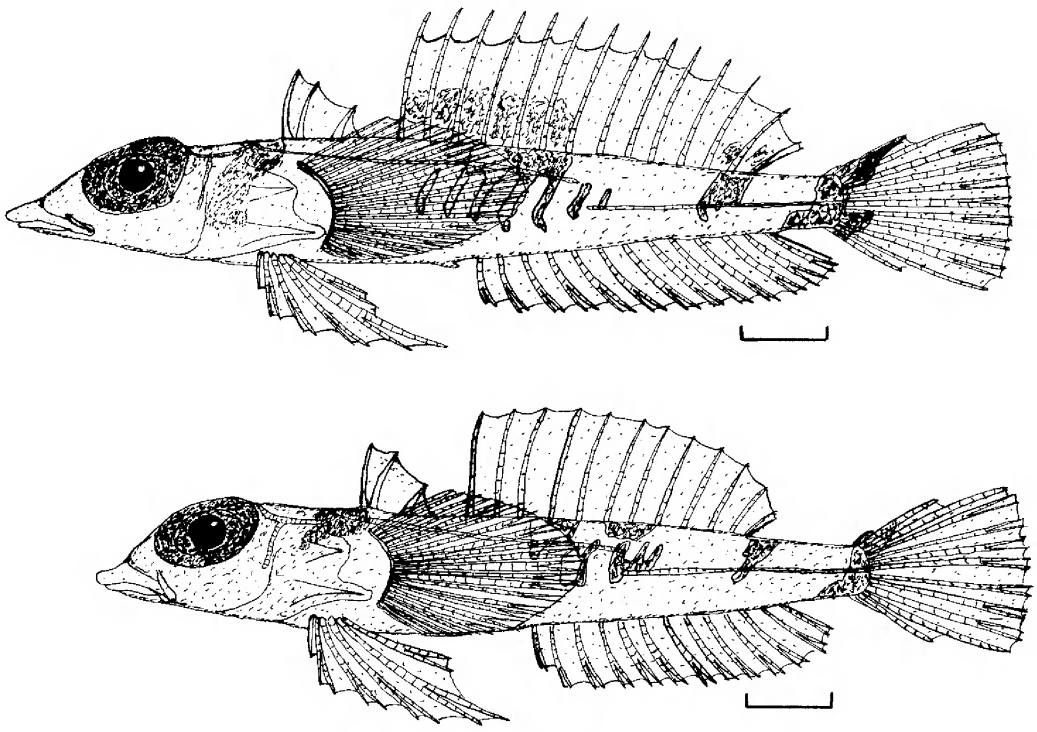

Fig. 1 *Centrodraco abstractum* **n. sp.**, AMS I.36455–006, Philippines, San Bernardino Strait; lateral view. – *Above:* Holotype, male, 96.8 mm SL; – *below:* paratype, female, 89.7 mm SL. – Scales: 10 mm.

Paratype. AMS I.36455–000, 1 female, 89.7 mm SL; same data as the holotype.

Etymology

"*Abstractus*" (Latin) means abstract; the name of the new species refers to the body colouration which reminds to pieces of abstract art style.

Diagnosis

A species of *Centrodraco* with 3 stout spines in the first dorsal fin, 12–14 soft rays in the second dorsal fin, 13 anal fin rays, and 24–27 pectoral fin rays; the first spine of the first dorsal fin slightly longer than the second spine in both sexes, but not elongate; the second dorsal fin distally slightly convex in both sexes, the male with very short distal filaments; the sides of the body with a group of 6–7 short transverse streaks below the anterior portion of the second dorsal fin, a dark saddle each before the first dorsal fin base and behind the second dorsal fin base, and a dark area on the caudal peduncle and basal caudal fin extending as a short dorsal dark stripe on the proximal one-third of the caudal fin; anterior and posterior basal sections of second dorsal fin dusky in male, vertical fins otherwise pale.

Description

D_1 III (III); D_2 xiii, 1 (xi, 1); A 13 (13); P_1 vi,16, ii, total 24 (iv–vi, 18–21, ii, total 26–27); P_2 I,5; C (ii), ii,8,ii, (ii).

Head 264 (275). Eye 135 (133). Preorbital length 59 (49). Interorbital distance 9 (14). Maxillary length 98 (106). Opercular spine 1.78 (2.05) in subopercular spine. Body depth 152 (144). Body width 164 (170). Caudal peduncle length 112 (100). Caudal peduncle depth 60 (60).

First dorsal fin low in both sexes, first spine longer than second spine but not filamentous or extended, length of first spine in the male 87, 2nd spine 81, 3rd spine 48; in the female, length of 1st spine 87, 2nd spine 85, 3rd spine 41. Predorsal (1) length 319 (325). Second dorsal fin distally slightly convex, fin rays simple, the last divided at its base; rays with short distal filaments in the male. First ray of second dorsal fin in the male 163, last ray 70; first ray in the female 152, last ray 41.

Predorsal (2) length 459 (466). Anal fin beginning on a vertical through 3rd or 4th membrane of second dorsal fin. Anal fin rays branched, the last divided at its base. First anal fin ray in the male 63, last ray 78; 1st ray in the female 58, last ray 65. Preanal fin fin length 551 (566). Pectoral fin reaching back to level of 3rd anal fin ray. Pectoral fin length 246 (262). Prepectoral fin length 318 (331). Pelvic fin reaching back to level of first anal fin ray base. Pelvic fin spine 41 (55); pelvic fin length 262 (303). Prepelvic fin length 280 (258). Caudal fin distally mostly straight; caudal fin length 215 (221).

Colour in alcohol. Eye dark grey. The sides of the body with a group of 6–7 short transverse streaks below the anterior portion of the second dorsal fin, a dark saddle each before the first dorsal fin base and behind the second dorsal fin base, and a dark area on the caudal peduncle and basal caudal fin extending as a short dorsal dark stripe on the proximal one-third of the caudal fin. Anterior and posterior basal sections of second dorsal fin dusky in male, vertical fins otherwise pale.

Sexual dimorphism. The male has a slightly higher second dorsal fin than the female, the second dorsal fin rays with short distal filaments (lacking in the female),

and the anterior and posterior basal portions of the second dorsal fin dusky (pale in the female).

Distribution

Philippines (San Bernardino Strait). Known only from the type locality, where the species was collected with an otter trawl at a depth of 376–382 m.

Relationships

This species is characterized as a member of the genus *Centrodraco* as it possesses stout and pungent first dorsal fin spines, and 13 anal fin rays. It is closely related to species of *Centrodraco* with a low second dorsal fin in males, and with the first spine of the first dorsal fin longer than the second spine, including *C. gegonipus* (Parin, 1982) (PARIN, 1982: 558, figs 1 C–D, Sala-y-Gomez Ridge, SE Pacific, as *Draconetta gegonipa;* FRICKE, 1992: 172–174, fig. 3, revision), *Centrodraco ornatus* (Fourmanoir & Rivaton, 1979) (FOURMANOIR & RIVATION, 1979: 418, fig. 10, S of Ile des Pins, New Caledonia, as *Draconetta ornata;* FRICKE, 1992: 182–184, revision), and *Centrodraco rubellus* Fricke, Chave & Suzumoto in Fricke, 1992 (FRICKE, CHAVE & SUZUMOTO in FRICKE, 1992: 185–187, fig. 11, Hawaiian Islands, Oahu, Mamala Bay, 363 m depth, type locality; off SE Lombok/Indonesia). The new species differs from *C. gegonipus* in having a lower first spine of the first dorsal fin in the male (first spine extended in *C. gegonipus*), much shorter second dorsal ray filaments in the male (about half of the rays filamentous in *C. gegonipus*), and the body and caudal fin colouration (plain brown in *C. gegonipus,* with a central dark blotch on the caudal fin base). It is distinguished from *C. ornatus* in the much shorter first spine of the first dorsal fin of the male (elongate in *C. ornatus*), and the body and caudal fin colouration (*C. ornatus* with 2–3 rows of longitudinal wavy streaks or spots; caudal fin without dark areas or streaks). *Centrodraco abstractum* differs from *C. rubellus* in the lacking filament of the male's first dorsal fin spine, which is longer than the second spine in the female (shorter than the second spine in *C. rubellus*), the presence of short filaments on the male's second dorsal fin (filaments absent in *C. rubellus*), the pale first dorsal fin (dusky to black in *C. rubellus*), the different body colouration (body covered with numerous rows of short vertical streaks and spots; caudal fin with a dorsal streak extending on its distal half).

Remarks

This new draconettid species brings the worldwide number of taxa of the species group up to 13, if a probably undescribed species from New South Wales/Australia (*Centrodraco* sp. of FRICKE, 1992) is included. *Centrodraco abstractum* is the first species of the genus recorded from the Philippines. In the vicinity, *C. pseudoxenicus* has been recorded from Hainan/China, *C. nakaboi* and *C. ornatus* from the Kyushu-Palau Ridge, and *C. rubellus* from Lombok/Indonesia. Any of these species may have a wider distribution range; it is at present impossible to draw zoogeographical conclusions from the scarce records of the family.

4. Key to the species of the family Draconettidae

1 D_1 spines long and slender; D_2 12; A 12; Indo-West Pacific ..... *Draconetta;* only species: ***Draconetta xenica*** Jordan and Fowler, 1903
– D_1 spines stout and pungent; D_2 14 (rarely 12–15); A 13 (-14) ..... *Centrodraco*, **2**

2 D_2 rays with long filaments **3**
– D_2 without filaments (rarely with very short filaments) **9**

3 First dorsal fin plain black; 1st D_1 spine shorter than 2nd spine, not filamentous; body with dark vertical lines; SE Pacific ..... ***Centrodraco striatus*** (Parin, 1982) (male)
– First dorsal fin light, may be distally dark; 1st D_1 spine longer than 2nd spine, filamentous; body not with dark vertical lines (may bear dark horizontal lines or dark blotches) **4**

4 Body with 2–3 long horizontal dark streaks **5**
– Body without long horizontal dark streaks (may have dark spots or blotches or short ocellate dark streaks) **6**

5 Each A membrane with a dark blotch; D_2 membranes each with a vertical dark line, distally dark; first D_1 spine 147 or less (in specimens with more than 70 mm SL); first D_2 ray less than 200 (in specimens with more than 70 mm SL); Western Indian Ocean ..... ***Centrodraco oregonus lineatus*** Fricke, 1992 (male)
– Anal fin light, without dark blotches; D_2 membranes without vertical dark lines, distally dark; first D_1 spine 148 or more (in specimens with more than 70 mm SL); first D_2 ray more than 230 (in specimens with more than 70 mm SL); Central Atlantic Ocean ..... ***Centrodraco oregonus oregonus*** (Briggs and Berry, 1959) (male)

6 Body with short ocellate lines and blotches; each A membrane with a dark spot; West Pacific ..... ***Centrodraco ornatus*** (Fourmanoir and Rivaton, 1979) (male)
– Body not with ocellate lines and blotches (may have small spots); anal fin plain white .. **7**

7 Body densely covered with dark spots; Japan and China ..... ***Centrodraco pseudoxenicus*** (Kamohara, 1952) (male)
– Body plain whitish or brown; if bearing spots, not densely covered, but spots in two distinct groups; SE Pacific or Australia **8**

8 D_2 membranes with vertical dark lines, distally dark; caudal fin base without a dark blotch; off NW Australia ..... ***Centrodraco insolitus*** (McKay, 1971) (male)
– D_2 membranes plain whitish, without vertical lines, may be distally dark; caudal fin base with a dark brown blotch; SE Pacific ..... ***Centrodraco gegonipus*** (Parin, 1982) (male)

9 First D_1 spine shorter than second spine **10**
– First D_1 spine longer than second spine **19**

10 First D_1 spine more than 2.5 in second spine; Australia ..... *Centrodraco* sp.
– First D_1 spine less than 1.8 in second spine **11**

11 D_1 plain black **12**
– D_1 not plain black (may be distally dark) **13**

12 Body with about 11 regular vertical dark streaks; anal fin with distal dark spots; SE Pacific ..... ***Centrodraco striatus*** (Parin, 1982) (female)
– Body with irregular dark spots and blotches, not with regular vertical dark streaks; anal fin plain white; Hawaiian Islands to Indonesia ..... ***Centrodraco rubellus*** Fricke, Chave & Suzumoto in Fricke, 1992 (female)

13 Body with 2–3 long horizontal dark lines **14**
– Body with irregular dark blotches, without horizontal dark lines **15**

14 Each A membrane with a dark blotch; D_2 membranes each with a vertical dark line; Western Indian Ocean ..... ***Centrodraco oregonus lineatus*** Fricke, 1992 (female)
– Anal fin light, without dark blotches; D_2 without vertical dark lines; Central Atlantic Ocean ..... ***Centrodraco oregonus oregonus*** (Briggs and Berry, 1959) (female)

15 Anal fin distally blackish; caudal fin distally blackish; Pacific Ocean ..... ***Centrodraco nakaboi*** Fricke, 1992 (males)

– Anal fin whitish, without any dark; caudal fin whitish, without any dark **16**

16 Second dorsal fin distally dark **17**
– Second dorsal fin whitish, without any dark; Atlantic Ocean .....
..... ***Centrodraco acanthopoma*** (Regan, 1904) (female)

17 First dorsal fin distally dark **18**
– First dorsal fin whitish, without any dark; Pacific Ocean .....
..... ***Centrodraco nakaboi*** Fricke, 1992 (female)

18 Caudal fin plain whitish, occasionally with a basal dark blotch; Atlantic Ocean .....
..... ***Centrodraco acanthopoma*** (Regan, 1904) (male)
– Caudal fin with a distal dark stripe and with a basal dark blotch; Pacific Ocean .....
..... ***Centrodraco nakaboi*** Fricke, 1992 (male)

19 First D_1 spine bearing a filament; upper third of caudal fin with a long dark streak reaching distal half of fin; Hawaiian Islands and Indonesia .....
..... ***Centrodraco rubellus*** Fricke, Chave & Suzumoto in Fricke, 1992 (male)
– First D_1 not filamentous; upper part of caudal fin without a dark streak or with a short dark streak at most in proximal one-third of fin (caudal fin may have a basal dark blotch)
..... **20**

20 Body densely covered with numerous round dark spots; Japan and China .....
..... ***Centrodraco pseudoxenicus*** (Kamohara, 1952) (female)
– Body colouration not as described above; either plain brown or whitish, or with short longitudinal streaks in its dorsal part, or with groups of short transverse streaks, or with pale brown spots in two distinct groups **21**

21 Body with short ocellate longitudinal streaks; West Pacific .....
..... ***Centrodraco ornatus*** (Fourmanoir and Rivaton, 1979) (female)
– Body colouration not as described above; either plain brown or whitish, or with groups of short transverse streaks, or with pale brown spots in two distinct groups **22**

22 Caudal fin pale, without any dark; body usually with pale brown spots in two distinct groups; off NW Australia ..... ***Centrodraco insolitus*** (McKay, 1971) (female)
– Caudal fin with a basal dark blotch; body plain brown or with groups of short longitudinal transverse streaks; Pacific **23**

23 Body light, with a group of short transverse streaks under anterior half of second dorsal fin; dorsal part of caudal fin with a short dark streak; male with tips of second dorsal fin filamentous only, female without filaments; Philippines .. ***Centrodraco abstractum*** **n. sp.**
– Body plain brown; dorsal part of caudal fin pale; distal half of second dorsal fin rays filamentous; SE Pacific ..... ***Centrodraco gegonipus*** (Parin, 1982) (female).

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